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February 14, 2008

VIA E-MAIL and FEDEX

Ms. Cathleen R. Martwick
Associate Regional Counsel
U.S. EPA - Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Re: Tronox's Request for Assisted Negotiations (ADR) Concerning DuSable Park

Dear Ms. Martwick:

This letter is in reply to your letter dated January 17, 2008, in which you requested a meeting to discuss settlement of any potential liability that U.S. EPA believes Tronox LLC ("Tronox") might have in connection with DuSable Park, through Tronox's voluntarily becoming party to a proposed Administrative Order on Consent ("AOC"). For the reasons explained below, Tronox is willing to discuss its voluntary joinder in such an AOC, but believes that a neutral mediator would be needed to facilitate such discussions with U.S. EPA. Thus, Tronox would condition its participation in such negotiations on the use of an alternative dispute resolution ("ADR") process.

Tronox's Reluctance to Join an AOC for DuSable Park

For a number of reasons, Tronox is hesitant to enter into any agreement that requires it to perform work or reimburse costs associated with investigation and/or remediation at DuSable Park, or to surrender its right to contest liability for response costs incurred by any person in connection with DuSable Park, including U.S. EPA.

First, the proposed AOC is bereft of any finding based on direct evidence that thorium-bearing materials associated with the historic activities of Lindsay Light Co. have been found in DuSable Park. The proposed findings merely state that DuSable Park is less than one-half mile from the historic Lindsay Light operations in Streeterville and that tailings associated with later operations elsewhere (in West Chicago) had to be remediated from offsite locations. From these purported findings, the AOC leaps to the conclusion that any materials evidencing above-background gamma radiation in DuSable Park must be associated with Lindsay Light. The support for that speculative inference is flimsy, at best. Indeed, the proposed AOC acknowledges that U.S. EPA has no evidence of Lindsay Light's disposal of tailings in the early Twentieth Century in Streeterville.

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Second, as Tronox previously informed U.S. EPA, analyses of soil samples collected in DuSable Park in 2002 demonstrated that those samples contained a substantial amount of coal ash, which contains naturally-occurring radioactive material. The concentration of thorium found in the DuSable Park samples in 2002 fell within the range reported in published literature for thorium found in coal ash. Moreover, the mineralogical characteristics of the sample material that exceeded 7.1 pCi/g total radium was consistent with the appearance and form of coal ash. See Letter of Mark Krippel to Fred Micke, Jan. 16, 2002 (attached).

Third, as you know, Tronox is a respondent to the Unilateral Administrative Order for the Lindsay Light II Site, Docket No. V-W-96-C-35, dated June 6, 1996 ("Lindsay Light UAO"). As a respondent to the Lindsay Light UAO, Tronox has been frustrated for many years that U.S. EPA has construed provisions of that UAO in ways that lacked valid bases in the order's text, applicable law, and sound scientific/public health reasoning. Tronox is justly concerned that U.S. EPA would take similar positions regarding provisions of a negotiated AOC for DuSable Park.

Over the last decade, Tronox has performed removal actions in Streeterville that resulted in thousands of tons of thorium-bearing materials being shipped offsite for disposal. In addition, working with developers in the area, Tronox has provided transportation and disposal services for other thorium-bearing materials that U.S. EPA concluded exceeded the Lindsay Light UAO's cleanup criteria. Recently, and with increasing frequency, Tronox has been required to transport and dispose of material from Streeterville that exceeded neither the UAO's express cleanup criteria nor the 1-in-1,000,000 ("10E-6") risk threshold generally required to undertake CERCLA removal actions.

In February 2007, Tronox provided U.S. EPA with a risk assessment for typical construction activities in Streeterville, which demonstrated that encounters during such work with thorium concentrations at the U.S. EPA cleanup criteria presented risks in the range of 1-in-100,000,000 ("10E-8").¹ Unfortunately, despite contrary guidance in a post-HEAST 2001 environment and without attempting to rebut Tronox's technical showing, U.S. EPA simply rejected a risk-based approach to determining remediation in Streeterville. U.S. EPA responded that such remediation requirements will be based on the standards published in 40 C.F.R. § 192 ("Section 192"). Yet, in practice, Tronox has been required by U.S. EPA to participate in remediation of materials that do not even exceed the numeric cleanup requirements in that regulation, because the agency has commonly invoked the ALARA principle to initiate and/or

¹ That risk assessment utilized the calculations published on the EPA Preliminary Remediation Goals for Radionuclides website. The risk assessment was reviewed by consulting experts who, in turn, consulted with staff at U.S. EPA headquarters to assure the assumptions were applied consistent with the agency's methodology.

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continue cleanup of materials that do not exceed the requisite criteria of Section 192 (5 pCi/g above background averaged over 100 square meters).

Moreover, Tronox is not aware that U.S. EPA has ever performed a specific, express ALARA analysis to justify the application of more stringent cleanup standards than required by Section 192. Tronox believes an appropriate ALARA analysis, using HEAST risk factors, would find that external gamma radiation is the *only* significant exposure pathway for low concentration thorium materials and that risk reduction beyond the 10E-8 level that Section 192 provides is not justified on the basis of ALARA.

Because external gamma radiation is the dominant potential exposure pathway in Streeterville, Tronox also proposed a cost-effective alternative means of measuring such exposure in the field that would demonstrate equivalence with the criteria in Section 192.² U.S. EPA, however, rejected this proposal.

Finally, Tronox has objected to unnecessary and excessively conservative biases in U.S. EPA's verification sampling methodology in Streeterville. In many cases when the agency has conducted sampling in an area to determine compliance with the Lindsay Light UAO cleanup criteria, the *highest* gamma location has been sampled rather than a random grid pattern. Also, surface scrapings have been collected rather than six-inch cores and, then, sample media greater than 0.25 inch diameter are screened and removed from the sample. These practices inject an extremely high bias to sample concentrations and preclude using the sample results for any valid correlation to the UAO cleanup criterion. Because the UAO criterion is primarily based on the external gamma exposure pathway, the biased sample results, if used in a risk assessment equation, will predict a significantly higher dose/risk than would have been measured over the area for which verification was being performed.

Federal Policy Favors the Use of ADR Procedures for Environmental Disputes

Despite these longstanding frustrations with U.S. EPA's implementation of the Lindsay Light UAO, Tronox is willing to enter into discussions about joining in an AOC for DuSable Park. But for the foregoing reasons, Tronox conditions its willingness to do so on the agency's

² That proposal would measure the tissue equivalent exposure rate at one meter above the surface of the excavation and compare that to the approximately 20 uR/hr-above-background rate that would be generated from thorium material at the Lindsay Light UAO criterion of 7.1 pCi/g total radium. (By comparison, Section 192 establishes 20 uR/hr-above-background as the criterion for habitable structures.) At that gamma exposure rate, the risk to a worker would be in the 10E-8 range for each day worked. Given infrequent encounters with thorium materials in Streeterville and the short duration of most Streeterville construction projects, this measurement protocol would be a conservative and cost-effective means of managing surveillance in compliance with the UAO.

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willingness to initiate an ADR process, facilitated by a knowledgeable mediator, to address the company's suite of concerns with U.S. EPA's approach to remediation in Streeterville.

As you are no doubt aware, a number of Federal statutes, orders, and policies encourage U.S. EPA to use ADR.

In 1998, Congress created the U.S. Institute for Environmental Conflict Resolution of the Morris K. Udall Foundation for that purpose. That same year, the Interagency Alternative Dispute Resolution Working Group was established. In December 2000, U.S. EPA published its Policy on Alternative Dispute Resolution in the Federal Register, declaring that U.S. EPA "strongly supports the use of alternative dispute resolution (ADR) to deal with disputes and potential conflicts." 65 Fed. Reg. 81,858 (Dec. 27, 2000). U.S. EPA stated that its "policy is intended to be flexible enough to respond to *the full range* of disputes EPA faces" *Id.* at 81,859 (emphasis added).

In August 2004, President Bush issued Executive Order 13352, which directed agencies to "carry out the[ir] programs, projects, and activities ... in a manner that ... facilitates cooperative conservation." Executive Order 13352 (Aug. 26, 2004). In furtherance of Executive Order 13352, the Office of Management and Budget and the President's Counsel on Environmental Quality directed Federal agencies to increase the "effective use of [environmental conflict resolution] and other forms of collaborative problem solving," and to "consider the use of assisted negotiations ... when addressing environmental conflicts" Joint Memorandum on Environmental Conflict Resolution at 3, 4 (Nov. 28, 2005) (Joint Memorandum). The Joint Memorandum recognized that the risks of failing to engage in collaborative problem solving include the following:

- protracted and costly environmental litigation;
- unnecessarily lengthy project and resource planning processes;
- costly delays in implementing needed environmental protection measures;
- forgone public and private investments when decisions are not timely or are appealed;
- lower quality outcomes and lost opportunities when environmental plans and decisions are not informed by all available information and perspectives; and
- deep-seated antagonism and hostility repeatedly reinforced between stakeholders by unattended conflicts.

Id. at 1.

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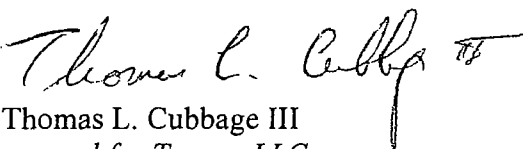
The Joint Memorandum cites a number of authorities, in addition to Executive Order 13352, encouraging the use of ADR, including the Administrative Dispute Resolution Act of 1996; the Regulatory Negotiation Act of 1996; the Contract Disputes Act of 1978, as amended; the Alternative Dispute Resolution Act of 1998; the Environmental Policy and Conflict Resolution Act of 1998 (P.L. 105-156); Executive Order 12988, "Civil Justice Reform" (February 5, 1996); Presidential Memorandum, "Designation of Interagency Committee to Facilitate and Encourage Use of Alternative Means of Dispute Resolution and Negotiated Rulemaking" (May 1, 1998); and Environmental Policy and Conflict Resolution Advancement Act of 2003 (P.L. 108-160).

Specifically under CERCLA, U.S. EPA is required to consider resolving disputes by settlement and assisted negotiations. *See* 42 U.S.C. § 9622(a). Consistent with this statutory requirement, U.S. EPA has a long-standing policy of pursuing negotiated resolution of CERCLA disputes with PRPs. *See, e.g., Intel Corp. v. Hartford Acc. & Indem. Co.*, 692 F. Supp. 1171, 1182 (N.D. Cal. 1988) (observing that "EPA's practice in administering Superfund has been to encourage settlement ... whenever possible"). U.S. EPA recently affirmed its commitment to negotiated resolution of CERCLA disputes in its Superfund/Oil Program Implementation Manual for Fiscal Year 2002-2003, which stated that the Superfund "program goals continue to focus on maximizing PRP participation, reducing transaction costs, [and] entering into fair settlements" UNSWE Directive 9200.3-14-1G-P, at I-5 (Sept. 16, 2002). U.S. EPA specifically noted that it was "expanding its use of ADR as a way to reduce the costs of achieving settlement with PRPs." *Id.* at I-6.

Consistent with U.S. policy encouraging the use of ADR, Tronox urges that the parties promptly engage the assistance of a qualified third-party neutral to assist us in coming to a resolution on these issues and in negotiating a settlement agreement for DuSable Park. Such a process holds the potential to lead the agency and Tronox to agreement on provisions of an AOC that can be implemented in a mutually understood and agreed-upon fashion. One suggested resource is the U.S. Institute for Environmental Conflict Resolution of the Morris K. Udall Foundation (www.ecr.gov).

I look forward to discussing the foregoing with you in the near future.

Sincerely yours,


Thomas L. Cubbage III
counsel for Tronox LLC

cc: Mark Krippel (Tronox LLC)



January 16, 2002
FLKE-009

PHONE
630-293-6330

VIA FIRST CLASS MAIL

Mr. Fred Micke
U.S. EPA, Region 5
On-Scene Coordinator
Emergency Response Section #3
77 W. Jackson Blvd. (SE-5J)
Chicago, Illinois 60604-3590

SUBJECT: Results of Mineralogical and Radiological Analyses of Soil/Coal Ash samples
and Literature Search Results on Natural Occurring Levels of Thorium in
Coal and Coal Ash.

REFERENCE: DuSable Park, Chicago, IL

Dear Mr. Micke:

Kerr-McGee is submitting mineralogical and radiological analysis results for the two soil/coal ash samples that were collected from DuSable Park. Hazen Research, Inc. of Golden, Colorado performed the mineralogical analyses and Kerr-McGee performed the radiological analyses. We are also submitting the results of a literature search regarding naturally occurring levels of thorium found in coal and coal ash. As would be expected for naturally occurring radioactive materials at concentrations near background, neither the Hazen Report nor the radiological analyses provide definitive proof regarding the origin of the monazite in the samples. The information at hand demonstrates that the samples contain a substantial fraction of coal ash and that the concentration of thorium in the samples falls within the range reported in the literature for coal ash.

The Hazen Report, included as Attachment A, provides a summary of the mineralogical findings. The Area C sample was predominately coal, glassy slag particles, iron oxides and natural siliceous gangue particles. The Area B-2 sample showed less coal and more natural minerals. Three major forms of thorium were identified in the two samples. The forms were liberated monazite in rounded or angular particles, ThO₂ in glassy slag particles, and ThO₂ as fine liberated particles. Glassy slag particles would be expected in coal ash in the form of cinders. A summary of radiological analyses of the Hazen flotation samples and the bulk samples collected following the excavation are presented in the Attachment B spreadsheet.

An internet literature search was conducted to obtain information regarding the range of naturally occurring levels of thorium found in coal ash. This information has been assembled for your information and reference in Attachment C.

The West Virginia Geological and Economic Survey (WVGES) provided the following information on thorium and monazite in West Virginia coals.

"Monazite is a rare igneous mineral present in granite which weathers free, and because of its great resistance to chemical attack, is concentrated as a detrital mineral in sands. Monazite in coal occurs as a micron-size, and smaller detrital grains introduced into the coal swamp as a windblown or waterborne detrital material, ... and because of its great resistance is unaffected by acids in the swamp."

The US EPA Radiation Protection Program web site provided the following information regarding the range of naturally occurring radionuclides in coal ash.

"Coal contains trace quantities of the naturally occurring radionuclides uranium, thorium and potassium as well as their radioactive decay products. When coal is burned, minerals including most of the radionuclides do not burn and as a result are concentrated in the ash."

Wastes	Radiation Level [pCi/g]		
	Low	Average	High
Bottom Ash	1.6	3.5-4.6	7.7
Fly Ash	2	5.8	9.7

The US EPA collected five soil samples from the DuSable Park Site on October 7, 2002. The following table summarizes the values obtained for total radium. This radiological information has been previously submitted to the U.S. EPA.

Area	Total Radium (Ra 226 + Ra228) (pCi/g)
A	5.3
B-1	1.1
B-2	4.7
B-3	3.5
C	8.0

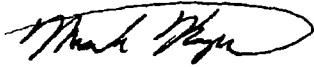
The sample results of Areas A, B-1, B-2 & B-3 are all under the US EPA's release criteria of 7.2 pCi/g total radium. Sample C, which was predominantly coal, slag, iron oxides and siliceous gangue particles, was within the US EPA's published limits for naturally occurring radionuclide concentration in coal ash. Per the requirements of 40 CFR 302.6(c)(3), releases of radionuclides from the dumping and transportation of coal and coal ash, including the dumping and land spreading operations that occur during coal ash uses are exempt from the notification requirements of CERCLA. Section 40 CFR 302.6(c)(3) has been included as Attachment D.

FLKE-009

Finally, we are including as Attachment E, the EPA NAREL report for the samples collected in October 2002. The NAREL data confirms the analyses performed earlier by Kerr-McGee. Please call me at (630) 293-6331 if you have any questions.

Very truly yours,

KERR-McGEE CHEMICAL LLC



Mark Krippel
Program Manager

Attachments

cc: Mary L. Fulghum, Esq. (USEPA)
LeeAnn Tomas (Chicago Park District)
File: DPCH - EPA
